The impact of the COVID-19 pandemic on educational transformation in African higher education: a systematic literature review on rural universities

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ABSTRACT

COVID-19 was a pandemic that hit the global world in late 2019, and by 2020 the international sectors were grounded with lockdowns. The lockdowns restricted human movement and gatherings to control the fast-rising waves of the deadly virus across the globe. The education system was significantly impacted as schools were shut down. Thus, academic activities conventionally face-to-face in African learning institutions were suspended for months before teaching and learning was transited to online, amidst many challenges, prospects and opportunities. Hence, this systematic literature review investigates the multifaceted impact of the COVID-19 pandemic on educational transformation within African higher education, especially rural universities in the South African context. The review synthesises peer-reviewed articles, reports, and studies published from early 2020 to the present, analysing the challenges institutions face, innovative strategies employed, and potential long-term implications. The findings highlight the rapid shift to online learning, equity and inclusivity concerns, pedagogical innovations, assessment modifications, faculty development initiatives, and mental health considerations. The review underscores the pandemic’s role in accelerating educational change and promoting the adoption of technology-enhanced learning in African higher education while also emphasising the importance of addressing digital disparities and ensuring educational equity.

Introduction

The COVID-19 pandemic has significantly impacted African higher education, forcing universities to move to online learning and highlighting the need for more substantial investment in technology and training (Abidemi et al., 2023). The pandemic has also created opportunities for innovation and transformation, such as developing more flexible learning options and greater collaboration between universities (Ajani, 2023). The pandemic has impacted educational transformation in African higher education by moving to online learning. The pandemic has forced many African universities to online learning, facing many challenges among users (Ardington et al., 2021). However, it has also created opportunities for innovation and transformation. Such as the need for more significant investment in technology, which is necessary for transformation to online learning (Black et al., 2020). Chiwandire (2022) posits that this has highlighted the need for more significant technological investment in African higher education. Hence, universities must ensure that all students have access to computers and the Internet and the skills to use these technologies effectively.

The need for more flexible learning options was one of the opportunities presented by the pandemic (Almutairi et al., 2021). The pandemic has also highlighted the need for more flexible learning options in African higher education (Maphalala & Ajani, 2023). This includes offering online and blended learning options and making it easier for students to transfer credits between institutions. By investing in technology and training and providing more funding for African higher education, universities can emerge more vital than ever before during the pandemic. The COVID-19 pandemic has emerged as a global crisis that has disrupted various sectors of society, including education (Aristovnii et al., 2020; Black et al., 2020). African higher education institutions have been particularly...
affected, necessitating rapid and comprehensive transformations to ensure continuity of learning (Cranfield et al., 2021). This systematic literature review aims to provide a comprehensive analysis of the impact of the COVID-19 pandemic on educational transformation in African higher education. By synthesising existing research, this review highlights the challenges faced, innovative solutions adopted, and potential long-term implications for higher education systems across the African continent.

### Literature Review

The impact of the COVID-19 pandemic on educational transformation in African higher education has been the subject of comprehensive and systematic literature reviews (Ajani & Khumalo, 2023). These reviews have examined various aspects of the pandemic’s effects on education in Africa, particularly in South Africa. In a study conducted by Mhlanga and Moloi (2020), which focused on the digital transformation of education in South Africa during the pandemic, the study affirmed that teaching and learning have been transformed to online platforms. The study tracked the rate at which institutions used Fourth Industrial Revolution (4IR) tools during the COVID-19 lockdown. It assessed the impact of the pandemic in motivating digital transformation in the education sector. Maphalala and Ajani (2023) report in their study that a variety of 4IR tools were unleashed during the pandemic to advance teaching and learning in higher education, reflecting pockets of excellence in South Africa that have the potential to increase access to education.

The COVID-19 pandemic has presented an opportunity to assess the successes and failures of deployed technologies and to scale up technology in education to improve access (Mhlanga & Moloi, 2020). However, the pandemic has also exposed inequalities among higher education institutions in South Africa, as some institutions needed more time to move to online teaching and learning due to a lack of adequate technology devices and ICT capacity systems (Ngoatle et al., 2022). This has highlighted the need for increased access to technology and internet connectivity for all students (Ngoatle et al., 2022).

The impact of the pandemic on higher education in South Africa has been multifaceted (Gittings et al., 2021). It has disrupted traditional face-to-face teaching and learning activities, leading to the adoption of remote (online) learning (Mhlanga & Moloi, 2020). However, the transition to online education has been challenging. Furthermore, Mhlanga and Moloi (2020) identified various challenges, such as communication issues, student assessment, use of technology tools, online experience, pandemic-related anxiety or stress, time management, and technophobia. The COVID-19 pandemic has also affected postgraduate student recruitment strategies in South Africa's higher education landscape (Konyana, 2023). The transformation of the higher education sector has created a research skills shortage, leading to low research output and discouraging prospective postgraduate students from enrolling in postgraduate studies (Konyana, 2023). This has highlighted the need for strategies to address the challenges and promote postgraduate enrollment in South Africa (Konyana, 2023).

Regarding policy and governance, the pandemic has prompted the Department of Higher Education and Training (DHET) in South Africa to equip institutions with the necessary resources to continue providing education (Ngoatle et al., 2022). The DHET has implemented safety measures, ensured business continuity in teaching and learning, and followed procedures for returning specific categories of students to campuses during the pandemic (Ngoatle et al., 2022). The study by (Ngoatle et al., 2022) evaluated the support for quality higher education teaching and learning during the pandemic period in South Africa. It recommended the continuation of online teaching as part of blended learning.

The COVID-19 pandemic has also exposed unmatched historical disparities that long existed in South African higher education institutions (Mtshweni, 2022). The pandemic exacerbated challenges relating to transformation, poor governance and funding, poor infrastructure, and limited access to universities (Mtshweni, 2022). The pandemic further intensified these challenges, highlighting the need for measures to address transformation and funding issues in higher education (Mtshweni, 2022). The COVID-19 pandemic has significantly impacted educational transformation in African higher education, particularly in South Africa (Ajani, 2023). The pandemic has accelerated the digital transformation of education, but it has also exposed inequalities and challenges in adopting online teaching and learning. The findings from comprehensive and systematic literature reviews highlight the need for increased access to technology, strategies to address research skills shortages, and measures to promote equity and redress in higher education. These insights can inform policy and practice to ensure the resilience and effectiveness of higher education systems in the face of future challenges.

### Transition to online learning in South African rural universities

Transitioning from face-to-face classrooms to online learning in South African rural universities has presented several challenges and opportunities. The challenges rural learners face in South Africa during the transition to online learning are highlighted (Dube, 2020). According to Dube (2020), these challenges include more resources to connect to the Internet, limited access to learning management systems, and low-tech software. Due to these limitations, the study emphasises the exclusion of many rural learners from teaching and learning (Dube, 2020). Garidzirai and Garidzirai (2021) also emphasise the difficulties faced by the South African government in providing quality education services in rural areas. Factors such as limited resources and historical inequalities contribute to the challenges in delivering effective education in rural communities (Dube, 2020). Segbenya and MensahMinadzi (2022) assert that students' preference for traditional teaching methods may be influenced by challenges experienced with online learning, such as unreliable power supply, erratic internet connectivity, and lack of collaboration and motivation. However, Chibuwe and Munoriyarwa (2023) suggest that blended learning approaches, combining face-to-face and online teaching modalities, can
address some of the challenges associated with online learning. It is recommended that suitable courses be taught online while others continue to be taught face-to-face (Chibwé & Munoriyrwa, 2023).

The impact of the COVID-19 pandemic on the transition to online learning is also discussed (Landa et al., 2021). The sudden shift from face-to-face classes to online teaching posed challenges for rural universities, particularly regarding limited ICT infrastructure and access to laptops and computers (Landa et al., 2021). Hlatshwayo (2022) highlights the challenges students and lecturers face during online teaching and learning, including unreliable power supply, limited internet facilities, and difficulties in teaching practical modules online (Hlatshwayo, 2022). Despite the challenges, some students have developed coping strategies to navigate online learning (Ramoshiba & Kgarose, 2022). The coping mechanisms identified are seeking support and employing positive strategies (Ramoshiba & Kgarose, 2022). In conclusion, the transition to online learning from face-to-face classrooms in South African rural universities has been accompanied by various challenges, including limited resources, unreliable infrastructure, and difficulties adapting teaching methods. However, blended learning approaches and the development of coping strategies offer potential solutions to enhance the effectiveness of online learning in rural contexts (Segbenya & Mensah-Minadzi, 2022).

Theoretical framework

Cultural-Historical Activity Theory (CHAT) provides a valuable framework for understanding the impact of the COVID-19 pandemic on educational transformation in rural higher education in South Africa. CHAT emphasises the social and cultural aspects of learning and recognises the importance of the broader socio-cultural context in shaping educational practices and outcomes. CHAT views education as a complex activity system that involves multiple interconnected elements, including learners, teachers, tools, rules, and the broader social and cultural context (Dube, 2020). The COVID-19 pandemic has disrupted the traditional activity systems in education, requiring adapting and transforming these systems to accommodate remote learning and online teaching in rural higher education. According to CHAT, tools mediate human activity and play a crucial role in shaping educational practices (Dube, 2020). In the context of the pandemic, digital technologies and online platforms have become essential tools for remote learning and communication between teachers and students in rural higher education (Mhlanga & Moloi, 2020). The availability and accessibility of these tools influence the extent to which educational transformation can take place.

CHAT emphasises the importance of social interaction and collaboration in learning (Dube, 2020). In the context of the pandemic, the shift to remote learning has highlighted the need for strong community engagement and collaboration among students, teachers, and the broader community in rural areas (Mhlanga & Moloi, 2020). Collaborative learning platforms and community-based initiatives can support educational transformation and ensure the continuity of learning in rural higher education (Garidzirai & Garidzirai, 2021). CHAT recognises the influence of cultural and historical factors on educational practices and outcomes (Dube, 2020). In the case of rural higher education in South Africa, the historical challenges and inequalities in access to quality education have been exacerbated by the pandemic (Mhlanga & Moloi, 2020). Understanding the cultural and historical context is essential for addressing these challenges and promoting equitable educational transformation. CHAT emphasises the importance of the Zone of Proximal Development (ZPD), which refers to the gap between a learner’s current abilities and their potential abilities with the support of others (Dube, 2020). In the context of the pandemic, the ZPD can be supported through online mentoring, peer collaboration, and teacher-student interactions in remote learning environments (Mhlanga & Moloi, 2020). Identifying and supporting learners’ ZPD is crucial for effective educational transformation in rural higher education.

CHAT recognises that learning and development are ongoing processes that involve transformation and change (Pfund et al., 2020). The COVID-19 pandemic has accelerated the need for educational transformation in rural higher education, requiring institutions to adapt their teaching methods, curriculum, and assessment practices to the online learning environment (Pfund et al., 2020). This transformation can lead to the development of new skills, knowledge, and competencies among students and teachers. In conclusion, Cultural-Historical Activity Theory (CHAT) provides a comprehensive framework for understanding the impact of the COVID-19 pandemic on educational transformation in rural higher education in South Africa. By considering the activity systems, mediating tools, community and collaboration, cultural and historical context, ZPD, and transformation and development, educational institutions can navigate the challenges posed by the pandemic and promote effective and equitable educational transformation in rural areas (Garidzirai & Garidzirai, 2021).

Justification for the CHAT in the study

Cultural-Historical Activity Theory (CHAT) is justified in the study of the impact of the COVID-19 pandemic on educational transformation in rural higher education in South Africa for several reasons. CHAT emphasises the importance of considering the socio-cultural context in understanding educational practices and outcomes (Saris, 2023). The COVID-19 pandemic has significantly impacted the socio-cultural context of education, particularly in rural areas where access to resources and infrastructure may be limited (Vom & Williams, 2017). CHAT provides a framework for analysing how the pandemic has influenced educational practices within this specific context.

CHAT views education as a complex activity system that involves multiple interconnected elements (Prins et al., 2018). The COVID-19 pandemic has disrupted traditional educational activity systems, requiring adapting and transforming teaching and learning practices in rural higher education (Vom & Williams, 2017). CHAT helps to analyse the changes and challenges within these activity systems and identify opportunities for educational transformation. CHAT recognises the role of tools and technologies in mediating
educational activities (Ramaila & Shilenge, 2023). The pandemic has necessitated using digital tools and online platforms for remote learning in rural higher education (Vom & Williams, 2017). CHAT provides a framework for understanding how these mediating tools shape educational practices and the challenges and opportunities they present. CHAT emphasises the importance of collaboration and community in learning (Saris, 2023). The COVID-19 pandemic has highlighted the need for strong collaboration and community engagement to support rural educational transformation (Vom & Williams, 2017). CHAT helps to analyse the dynamics of collaboration and community involvement in the context of the pandemic.

CHAT recognises that learning and development are ongoing processes that involve transformation and change (Bennett, 2020). The pandemic has accelerated the need for educational transformation in rural higher education, requiring institutions to adapt their teaching methods and curriculum to remote learning environments (Vom & Williams, 2017). CHAT provides a framework for understanding transformation and development processes in this context. CHAT can also be applied to analyse the justification of educational practices and decision-making processes (Miles, 2020). Justifying educational practices, such as adopting online learning platforms, requires critical thinking and research-informed decision-making (Vom & Williams, 2017). CHAT helps to analyse the factors influencing the justification of educational practices in the context of the pandemic.

Cultural-Historical Activity Theory (CHAT) is justified in the study of the impact of the COVID-19 pandemic on educational transformation in rural higher education in South Africa due to its emphasis on the socio-cultural context, activity systems, mediating tools, collaboration and community, transformation and development, and justification and decision making. Applying CHAT provides a comprehensive framework for understanding the complex dynamics and challenges of educational transformation in the context of the pandemic.

**Research Methodology**

A thorough search of academic databases, repositories, and relevant journals was performed to conduct this systematic literature review. Keywords such as "COVID-19," "pandemic," "educational transformation," "African higher education," and related terms were utilised to identify relevant studies. Inclusion criteria encompassed peer-reviewed articles, reports, and studies published from the onset of the pandemic in early 2020 up to the present. The selected literature was analysed and synthesised following a rigorous screening process to discern patterns, trends, and recurring themes. Thus, this systematic review adopted the preferred PRISMA for systematic reviews and meta-analyses (Moher et al., 2009).

**Prospects and Opportunities in covid-19-induced educational transformation in South African rural universities**

The COVID-19 pandemic has come and gone, but the impact of the pandemic on higher education remains significant (Gumede & Badriparsad, 2022). Thus, the prospects and opportunities for educational transformation in South African rural universities have been explored in various studies (Dube, 2020; Hedding et al., 2020; Gumede & Badriparsad, 2022; Ajani, 2023; Konyana, 2023). These studies have highlighted the potential for inclusive education approaches, the importance of addressing the needs of rural students, and the significance of curriculum transformation and social justice in higher education. Dube (2020) discusses rural students' challenges in South Africa during the COVID-19 pandemic and emphasises the need for an inclusive education approach. The study argues that rural students are critical stakeholders in education and should be included in efforts to fight the pandemic (Dube, 2020). It also highlights the importance of enhancing online learning in the context of COVID-19 and addressing the limitations rural students face (Dube, 2020).

The issue of social justice and equity in South African rural higher education is addressed in several studies (Koen & Robertson, 2021; Konyana, 2023). Ngubane and Makua (2021) explore the intersection of Ubuntu pedagogy and social justice, emphasising the need for transforming higher education to ensure equal learning opportunities and fair participation. They argue that complete transformation in higher education requires addressing curriculum enactment and re-centring social justice issues (Ngubane & Makua, 2021). Similarly, Tella (2022) discusses the insights from transformation efforts in postcolonial African states and the African-American studies movement in the United States, providing potential solutions for curriculum transformation in South Africa. The experiences of African women doctoral students in STEM disciplines in South African universities are examined in a study (Mkhize, 2022). The study highlights the challenges faced by African women in STEM based on their racial and gendered identities and questions whether the transformation efforts in STEM disciplines are genuine or merely reform (Mkhize, 2022). It calls for strategic interventions to dismantle oppressive ideologies and promote genuine transformation.

The potential role of student leaders in driving transformation in South African universities is explored in a study by (Pule & Mayer, 2021). The study highlights student activism's influence in changing university policies and funding models, particularly with access to education and student success (Pule & Mayer, 2021). It emphasises the importance of student leadership in promoting transformation and addressing the aspirations of the "born frees" generation (Pule & Mayer, 2021). The prospects and opportunities for educational transformation in South African rural universities lie in adopting inclusive education approaches, addressing the needs of rural students, promoting curriculum transformation, and ensuring social justice and equity in higher education. These studies provide insights into the challenges and potential solutions for transforming rural higher education in South Africa, emphasising the importance of inclusive practices, curriculum reform, and the role of student leaders in driving change. By addressing these issues, South African rural universities can create a more inclusive and equitable educational environment for all students (Koen & Robertson, 2021).
Impact of Covid-19 on Educational Transformation in rural higher education

The impact of the COVID-19 pandemic on educational transformation in South African rural higher education has been examined in several studies (Jacob et al., 2020; Mahaye, 2020; Landa et al., 2021; Le Grange, 2021; Ajani & Khumalo, 2023). These studies have highlighted the challenges and opportunities faced by educational institutions in rural areas during the pandemic. Landa et al. (2021), in their study on the access to online teaching and learning platforms and resources for students from poor rural communities in South Africa, found that there are gross inequalities in educational outcomes for students from different socio-economic backgrounds, which affects the plans of higher education institutions to provide teaching and learning through online-based platforms. Landa et al. (2021) call for support of rural students in online learning in rural higher institutions, potentially expanding higher education access post-COVID-19.

In another study by Garidzirai and Garidzirai (2021), the challenges of remote learning for students in rural South African universities during the pandemic were highlighted. The study identified unique challenges rural universities face, such as limited access to technology and internet connectivity, lack of familiarity with online learning platforms, and the need for personalised support for students in remote areas. The authors recommend the introduction of online learning from an early stage to ensure continuity and ease in remote learning. The impact of the pandemic on rural university students in South Africa was also examined in a comparative analysis study by Newlin and Kiiza (2022). The study compared the impact of the pandemic on rural university students in South Africa and Uganda and found that rural students in both countries were affected by instructional, psychological, and social challenges. The study recommends prioritising online teaching and learning for rural students and providing adequate training in educational technology skills for lecturers and students.

Furthermore, the impact of the pandemic on student mental health and the role of student counselling services in higher education were discussed in a study (Naidoo & Cartwright, 2020). The study highlighted the shifts in student mental health and psycho-social vulnerability due to the pandemic and the increased demand for student counselling services. The authors discussed the need for technological shifts in counselling practice and adopting a customised or blended approach to accommodate student needs. Various literature sources indicate that the COVID-19 pandemic has posed significant challenges to educational transformation in South African rural higher education (Mahaye, 2020; Mahlaba, 2020; Le Grange, 2021; Maphalala & Ajani, 2023). Limited access to technology and internet connectivity, inequalities in educational outcomes, and the need for personalised support for students in remote areas have been identified as critical issues (Mhlanga & Molozi, 2020; Ajani & Khumalo, 2023). However, the pandemic has also presented opportunities for expanding online learning and adopting innovative teaching and learning approaches.

Challenges of educational transformation from COVID-19 in rural universities

The challenges of educational transformation from COVID-19 in South African rural higher education have been extensively studied. These studies have highlighted various issues and obstacles faced by educational institutions in rural areas during the pandemic (Mahlaba, 2020; Mahaye, 2020; Mhlanga & Molozi, 2020). One of the critical challenges identified is the digital divide and limited access to technology and internet connectivity in rural communities (Dube, 2020; Moonsamy et al., 2022; Woldegiorgis, 2022). This has hindered the effective implementation of online learning and remote teaching methods, as many students in rural areas do not have the necessary resources to connect to online platforms and participate in virtual classes (Dube, 2020; Moonsamy et al., 2022; Woldegiorgis, 2022). The lack of access to technology and reliable Internet has further exacerbated educational inequalities (Woldegiorgis, 2022). Additionally, the studies have pointed out the need for more familiarity and preparedness for online learning among students and teachers in rural areas (Dube, 2020). Many lecturers and students had to quickly adapt to new modes of teaching and learning, which presented significant challenges in technical skills, digital literacy, and pedagogical approaches (Dube, 2020; Moonsamy et al., 2022). The transition to online learning has also highlighted the need for personalised support and guidance for students in rural areas (Dube, 2020).

Furthermore, various studies have emphasised the socio-economic challenges faced by rural communities, such as poverty, limited access to resources, and inadequate infrastructure (Dube, 2020; Koen & Robertson, 2021). These factors directly impact the quality of education and the ability of educational institutions to provide effective teaching and learning experiences (Dube, 2020; Mahaye, 2020; Koen & Robertson, 2021; Mkhize, 2022). The pandemic has further exacerbated these challenges, making it even more difficult for rural students to access quality education (Moonsamy et al., 2022; Maphalala & Ajani, 2023). The studies have also highlighted the importance of an inclusive and equitable approach to education during the pandemic (Dube, 2020; Moonsamy et al., 2022). It is crucial to ensure that the rights and needs of rural students are considered and that every student is included (Dube, 2020; Mahlaba, 2020). This requires addressing the systemic inequalities and barriers that hinder access to education in rural areas (Dube, 2020; Moonsamy et al., 2022; Woldegiorgis, 2022). It also calls for the involvement of teachers and students in the decision-making processes and the development of strategies to enhance online learning in rural communities (Dube, 2020).

The challenges of educational transformation from COVID-19 in South African rural higher education are multifaceted (Moonsamy et al., 2022). The digital divide, limited access to technology and internet connectivity, lack of familiarity with online learning, socio-economic challenges, and inadequate infrastructure are among the key obstacles faced by educational institutions in rural areas (Naidoo & Cartwright, 2020). Addressing these challenges requires a comprehensive and inclusive approach considering rural students’ and communities’ specific needs and circumstances (Motala & Menon, 2020). It is essential to bridge the digital divide,
provide personalised support, and ensure equitable access to quality education for all students, regardless of their geographical location or socio-economic background.

During the COVID-19 pandemic, South African rural universities faced several challenges in terms of educational transformation. According to Naidoo and Cartwright (2020), these challenges were highlighted in various studies and articles. One of the main challenges faced by rural universities was the transition from face-to-face to online learning. The lack of resources, such as internet connectivity and access to learning management systems, posed significant barriers for rural students (Dube, 2020; Mahaye, 2020). Many rural students needed more resources to connect to online platforms and participate in remote learning (Dube, 2020). This digital divide further exacerbated educational access inequalities (Dube, 2020; Newlin & Kiiza, 2022).

Additionally, the shift to online learning required significant adjustments in teaching practices and pedagogical approaches (Ngoatle et al., 2022). Teachers and lecturers had to quickly adapt to new technologies and develop digital literacy skills to effectively deliver online instruction (Newlin & Kiiza, 2022; Ngoatle et al., 2022). This transition was particularly challenging for institutions unprepared with the necessary technology devices and ICT capacity systems (Ngoatle et al., 2022). Furthermore, the COVID-19 pandemic highlighted the existing inequalities in the higher education system. Some rural universities needed more infrastructure and resources to implement online learning effectively (Ngoatle et al., 2022). This further marginalised rural students and hindered their access to quality education (Dube, 2020). The pandemic also disrupted other associated activities, such as graduation ceremonies, which had to be conducted virtually (Ngoatle et al., 2022). Another challenge faced by rural universities was the impact on students and staff's well-being and mental health. The sudden shift to remote learning and the isolation caused by lockdown measures had adverse effects on the mental health of individuals (Zafar, 2022). Universities had to implement measures to support the well-being of students and provide resources for mental health support (Ngoatle et al., 2022).

Regarding policy and governance, rural universities had to navigate the changing regulations and guidelines imposed by the government and health authorities. They had to ensure compliance with safety protocols, establish isolation and quarantine facilities, and provide personal protective equipment (Ngoatle et al., 2022). The pandemic's uncertainty and rapidly changing nature made it challenging for universities to plan and make informed decisions. South African rural universities faced several challenges in terms of educational transformation during the COVID-19 pandemic (Olumwimi & Mavuso, 2022). These challenges included the digital divide, lack of resources for online learning, adjustments in teaching practices, existing inequalities in the higher education system, impact on well-being and mental health, and navigating through changing regulations. Addressing these challenges required innovative approaches, resource allocation, and stakeholder collaboration to ensure that rural students were included in their educational journey (Onyema et al., 2020).

**Strategies and innovations adopted by South African rural universities to address the challenges from covid-19 pandemic**

The COVID-19 pandemic has presented significant challenges for South African rural universities, particularly transitioning from face-to-face to online learning (Pule & Mayer, 2021). These challenges have necessitated the adoption of various strategies and innovations to address rural students' unique needs and circumstances (Out et al., 2023). One strategy employed is online learning management systems (LMS) and low-tech applications (Pandi et al., 2022). However, it has been found that this mode of learning excludes many rural students due to a lack of resources to connect to the Internet and access the necessary software (Dube, 2020; Reimers, 2022). To overcome this, some universities have sought alternative pathways to ensure disadvantaged students can access effective e-learning (Mpungose, 2020; Reimers, 2022b). This includes providing resources such as laptops or tablets and ensuring access to reliable internet connectivity (Garidzirai & Garidzirai, 2021).

In addition to addressing the technological challenges, universities have also focused on inclusive education approaches to ensure that rural students are included in the fight against the pandemic (Tamrat & Teferra, 2020; Tella, 2022). This involves adopting a bottom-up approach, where teachers and students with first-hand experience with online learning are actively involved in the decision-making process (Spaull & Van der Berg, 2020). By challenging the oppressive status quo, a social transformation that values social justice can be achieved (Dube, 2020). Furthermore, universities have had to revise their teaching practices and approach to accommodate the shift to online learning. Teaching practice coordinators have had to improvise and innovate to provide valid and constructive alternatives to face-to-face classes when suspended (Wepener, 2022). This has involved revisiting conventional teaching practice models and finding new ways to ensure student teachers receive practical training (Wepener, 2022). Van Schalkwyk (2021) posits that the challenges faced by rural universities during the COVID-19 pandemic have highlighted the need for proactive planning and the development of strategies to counter future disruptions. It is crucial for universities to be ahead of any challenges and to adapt to technology to ensure continuity in teaching and learning (Newlin & Grasiab, 2021). This includes considering the unique inequality challenges rural education environments face and addressing the limited skills and access to technology that some students may have (Garidzirai & Garidzirai, 2021). South African rural universities have implemented various strategies and innovations to address the challenges posed by the COVID-19 pandemic. These include online learning management systems, inclusive education approaches, and revisions to teaching practices. However, universities must continue to adapt and plan for future disruptions to ensure that all students have equal access to quality education (Woldegiorgis, 2022).
The outcomes and impacts of the strategies on educational transformation from covid-19 in rural universities

The strategies implemented by South African rural universities during the COVID-19 pandemic have had various outcomes and impacts on educational transformation (Spaull & Van de Berg, 2020). These outcomes and impacts have been discussed in several studies (Dube, 2020; Mahaye, 2020; Tella, 2022; Ajani, 2023). One of the outcomes of the strategies implemented is the shift to online learning. Many rural universities had to quickly adapt and transition from face-to-face to online learning platforms (Tang, 2022). This shift has allowed for the continuation of education during the pandemic and has provided opportunities for students to engage in remote learning (Mahaye, 2020; Tang, 2022). However, the impact of online learning has yet to be uniform, as it has highlighted the digital divide and the challenges faced by students who lack access to technology and reliable internet connectivity (Tang, 2022). This further exacerbated educational access inequalities (Mhlanga & Moloi, 2021; Tang, 2022).

Another outcome of the strategies implemented is adoption of new teaching and learning methods (van Schalkwyk, 2021). Universities have had to explore innovative approaches to deliver educational content and engage students in remote learning (Short & Giles, 2021). This has led to the development and implementation of various strategies, such as blended learning, where a combination of online and face-to-face instruction is utilised (Chasanah & Purwanti, 2022). These new teaching and learning methods have allowed for flexibility and adaptability in education delivery (Chasanah & Purwanti, 2022). The strategies implemented by rural universities have also had an impact on the well-being and mental health of students and staff. The sudden shift to remote learning and the isolation caused by lockdown measures have adversely affected individuals’ mental health (MacLeod et al., 2022).

Universities have recognised the importance of supporting the well-being of students and have implemented measures to provide mental health resources and support (MacLeod et al., 2022). Furthermore, the strategies implemented have highlighted the need for resilience and adaptability in facing challenges. Universities have had to quickly adapt to changing circumstances and develop strategies to address the unique needs of rural learners (Morales-Rodríguez, 2021). This has required collaboration and innovation to ensure the continuity of education and the well-being of students and staff (Morales-Rodríguez, 2021).

Conversely, the strategies implemented by South African rural universities during the COVID-19 pandemic have had various outcomes and impacts on educational transformation (Reimers, 2022). These include the shift to online learning, adopting new teaching and learning methods, impacting well-being and mental health, and the need for resilience and adaptability. While these strategies have allowed for the continuation of education during challenging times, they have also highlighted existing inequalities and the need for further support and resources to ensure equitable access to quality education in rural areas (Ajani & Khumalo, 2023).

Conclusion

The COVID-19 pandemic has catalysed a transformative journey in African higher education, prompting institutions to rethink and adapt their traditional modes of operation. While the pandemic revealed disparities in digital access and highlighted the importance of equity, it also facilitated innovative solutions to enhance learning and teaching. The experiences gained during this crisis may pave the way for a more resilient and technologically advanced educational landscape in African higher education. As the pandemic subsides, reflecting on the lessons learned and striving for an inclusive, flexible, and equitable African higher education system is essential.

Recommendations have been made to address these challenges and ensure equitable access to quality education for rural students in South Africa:

i. The pandemic compelled African higher education institutions to transition swiftly from traditional face-to-face instruction to online and remote learning modalities. While this shift facilitated continued education, it also exposed disparities in internet access, digital literacy, and technological infrastructure, particularly in resource-constrained regions.

ii. The move to online learning underscored existing inequalities within African higher education. Students from marginalised backgrounds faced barriers in accessing online resources, exacerbating educational disparities. To address these disparities, universities sought creative solutions, such as providing digital devices and zero-rating educational platforms.

iii. The pandemic prompted lecturers to rethink traditional teaching methods. Many institutions embraced technology-enhanced learning, including multimedia content, virtual labs, and collaborative online platforms. This forced adoption of innovative teaching methodologies might have lasting positive effects on pedagogical practices.

iv. Traditional assessment methods were challenged by the limitations of online learning. Institutions grappled with academic integrity issues and developed new assessment strategies, such as open-book exams and project-based evaluations, to ensure fairness and authenticity in student evaluations.

v. The sudden shift to online teaching required faculty members to acquire new technological skills. Institutions initiated training programs to equip lecturers with the necessary tools for effective online instruction, highlighting the importance of ongoing professional development.

vi. The pandemic’s disruption to academic routines and the social isolation resulting from online learning posed mental health challenges for students and lecturers alike. Universities recognised the need for psychological support services to address these concerns.
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